

Frost Bridge Road Bridge
(State Bridge No. 3816)
Spanning the Naugatuck River
on State Route 262, between
the towns of Thomaston and Watertown
Litchfield County
Connecticut

HAER No. CT-35

HAER
CONN,
3-THOM,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Mid-Atlantic Region
National Park Service
U. S. Department of the Interior
Philadelphia, Pennsylvania 19106

HISTORIC AMERICAN ENGINEERING RECORD

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(State Bridge No. 3816)

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Location: Spanning the Naugatuck River on Connecticut State
Route 262, between the towns of Thomaston and Watertown
Litchfield County, Connecticut

UTM: 18.661700.4608800

Date of Construction: 1922

Builder: Berlin Construction Company of Berlin, Connecticut

Present Owner: The Connecticut Department of Transportation

Present Use: Vehicular bridge

Significance: The Frost Bridge Road Bridge is historically
significant as an example of a Pratt Through truss
bridge, a popular structure type commonly used
throughout the northeast.

Project Information: This project was undertaken in May 1988 in accordance
with the Memorandum of Agreement by the Connecticut
Department of Transportation as a mitigative measure
prior to demolition of the bridge.

Compiler: Frank T. Simpson
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Office of Engineering
Bureau of Highways
Connecticut Department of Transportation
Newington, Connecticut

July 1988

I. HISTORICAL INFORMATION

1. Physical History

The present bridge was constructed in 1922 by the Berlin Construction Company of Berlin, Connecticut. It is a seven-panel, single span, riveted Pratt through truss, with a span length of 114 feet 7-1/2 inches, a clear roadway width of 15 feet 6 inches, and a vertical clearance of 13 feet at the portals. The bridge has no sidewalks. An on-site inspection revealed a mortared stone masonry abutment on the Thomaston (east) end of the bridge, but a poured concrete abutment on the Watertown (west) end.

The bridge separates the towns of Thomaston and Watertown, who apparently shared the construction costs. The nameplates on the eastern (Thomaston) and western (Watertown) portals carry the same manufacturer's inscription, but the list the different town selectmen, as follows:

1922
Built by
Berlin Construction Co.
Berlin, CT.

Selectmen
Town of Thomaston
E. A. Bradley
E. L. Strumpf
R. J. Wallace

1922
Built By
Berlin Construction Co.
Berlin, CT.

Selectmen
Town of Watertown
C. W. Atwood
M. A. Brahen

The bridge remained under town control until December 23, 1974, when it was accepted as part of the state system, effective 60 days from that date. For some reason, the bridge does not appear to have actually come under state control until May 30, 1975.

No maintenance and repair records for the bridge prior to its designation as a state bridge were located. Watertown did not have an engineering department until 1965 and that office had no records of any work done on the bridge. During the time that Thomaston had partial control of the bridge, most decisions were made by the selectmen, but a cursory examination of the minutes of their meetings revealed no specific references to the structure. However, the Town and Federal Aid section of the Connecticut Highway Department must have been working closely with the towns regarding maintenance of the bridge for a number of years, because a 1954 inspection by the State Highway Department indicated the need for a new abutment at

the western end and for extensive repair to the disintegrated concrete deck. Following this inspection, the new concrete abutment was placed under the western end and an asphalt-covered metal plank system installed as wearing surface. A subsequent inspection in 1968, again by the Connecticut Highway Department, determined that the overall condition of the structure was good, but that the deck needed repair or possibly replacement. No record of total deck replacement at this time was found, but the state records show that the bridge was redecked in 1980, some five years after the State took it over. By 1986, the deck surface had deteriorated enough to require reduction of the load limit from 10 to 5 tons until the timber deck and nailers could be replaced. Once this was the completed, the load limit was returned to the 10 ton limit.

2. Berlin Construction Company

The Berlin Construction Company is the historical successor to the Berlin Iron Bridge Company, which was started in 1868 as the American Corrugated Iron Company, making corrugated roofing panels. In the early 1870s, the company became involved in the manufacture of iron support trusses for the installation of its roofing products. In 1878, the Corrugated Metal Company, as the company was then known, acquired the manufacturing rights to William Douglas's lenticular bridge patents and began to fabricate wrought iron bridge trusses. The lenticular trusses differ from other curved top bridge designs by having bottom chords which are mirror images of the top ones, but much lighter in construction. Business was good and, in 1883, they changed the name of the company to the Berlin Iron Bridge Company. Because the lenticular design used less material than either the more common Pratt or Warren trusses, it became a fairly popular design, especially in New York and New England. Hundreds of these structures were built during the next twenty years, ranging in size from under thirty feet to the 288-foot Raymondville Road span in Norfolk, New York.

By the turn of the century, the Berlin Iron Bridge Company was the largest structural steel fabricator in New England. The popularity of lenticular bridges began to decline, however, as engineering firms standardized on the more common Pratt and Warren configurations. In 1900, the American Bridge Company was organized by J. P. Morgan and, within one year, had purchased 24 bridge companies and controlled approximately half of all bridge construction facilities in this country. It was in 1900 that American Bridge bought the Berlin Company and moved it from its Connecticut location. When this happened, three former Berlin Iron Bridge Company executives formed the Berlin Construction Company to produce structural steel for

different industrial projects, including bridges. Many of Connecticut's truss bridges were manufactured by this concern, including the Frost Bridge Road Bridge. The company, now called the Berlin Steel Construction Company, still manufactures structural steel fabrications, but welding and high strength bolts have replaced the older riveted joints.

3. History of the Crossing

Thomaston and Watertown, the two towns that share the Frost Bridge Road structure, were settled fairly late in Connecticut history. In 1673, a group of Farmington residents petitioned the General Court for an investigation of the lands to their west. A plan for such an investigation was drawn up in 1674, but King Philip's war in 1675 delayed implementation of the plan until 1677, when the Farmington men were given permission to purchase land from the Indians. The land purchased, called Mattatuck, included the present Waterbury, Watertown, Woodbury, Prospect, Thomaston, Wolcott, and Plymouth. In 1730, John Sutliff built a saw and grist mill, needed to service the growing community. By 1739, the "upriver people," still very much a part of Waterbury, were granted permission to hire a preacher and, in 1870, the town of Watertown was finally set off from Waterbury. It is not known when the first bridge was constructed at the present location, but the 1893 USGS map shows a bridge in place, and Joseph Anderson's history of Waterbury, written in 1896, states that you cross a "Frost's bridge" to get to Buck's meadow, which is now the site of a drive-in theatre.

Slightly over a half mile east of Frost's bridge, or the Frost Bridge Road Bridge, as it is now known, is the little settlement of Greystone, where Eli Terry set up a shop to make clock movements and cases. Prior to 1800, clock gears were made of brass castings and hand-filed to shape, or of brass stock hammered flat on an anvil. Eli Terry made clocks with wooden movements, not a new idea in the clock industry, but one which quickly caught on in this country because of the lower cost. By 1830, however, there were Waterbury mills rolling sheet brass, and stamped clock gears quickly became the norm. It is quite probable that Eli Terry and other Connecticut peddlers used Frost's bridge as they started off from the factory with their load of shelf clocks. A former partner of Terry's, Seth Thomas, soon built a factory in Plymouth Hollow, later known as Thomas Town and now as Thomaston. Eventually, the wooden bridge was replaced by a lenticular bridge (almost certainly a Berlin Bridge Company product) and, in 1928, by an arched concrete bridge. There is nothing to indicate whether the earlier bridge(s) at the Frost Bridge Road crossing were made of iron or wood.

II. CONSTRUCTION ENGINEERING

A Description of Existing Bridge

Constructed in 1922 by the Berlin Construction Company, the existing bridge carries Connecticut Route 262 over the Naugatuck River between Thomaston and Watertown. It is a single span, one lane, seven panel Pratt Through truss steel bridge, with a span of 114 feet 7-1/2 inches, a roadway width of 15 feet 6 inches, and an average vertical clearance of 13 feet. The 1922 drawings indicate that two stone abutments remained from an earlier bridge or bridges. The easterly abutment was reused with minor modifications. The westerly abutment was partially reconstructed, replacing the stem and parts of the wings with concrete. In 1954, this abutment was judged unserviceable and replaced with a reinforced concrete structure founded on steel piles.

The superstructure consists of two riveted Pratt trusses supporting rolled section floor beams and stringers. The original 6-inch reinforced concrete deck was replaced in 1955 with asphalt-covered metal planks. Subsequently, this was replaced with a lighter timber deck, which remains today.

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